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CHILDREN'S MEMORY OF SEX ROLE INFORMATION

by

Jaya Gupta

**A thesis
presented to the University of Windsor
in partial fulfillment of the
thesis requirement for the degree of
Master of Arts
in
Psychology**

Windsor, Ontario, 1987

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ABSTRACT

The present study examined the biasing effects of gender schemata on children's memory of sex role information using a frequency judgement paradigm. Children from grades 2 and 5 were shown slides of boys and girls performing traditionally masculine or feminine activities. When an actor of the stereotypic sex performed the activity, the picture was considered traditional (e.g., a girl cooking). When an actor of the counterstereotypic sex performed the activity, the picture was considered nontraditional (e.g., a boy cooking). The slide of a boy performing a certain activity and that of a girl performing the same activity were shown equally often. One half of the children in each grade were shown a shorter set of slides and the remaining half were shown a longer set of slides. The most critical hypothesis was that children would estimate that the traditional pictures appeared more frequently than the nontraditional pictures, even though both were actually presented equally often. This hypothesis was generally confirmed, especially for younger children. The phenomenon of differential estimation of traditional and nontraditional pictures can be understood using the gender schema theory proposed by Martin and Halverson (1983), that memory for sex role information is se-

lective and prone to distortions. The finding was discussed in terms of how the gender schema maintains stereotypes, even in the face of disconfirming evidence. A second prediction was that differential estimation would be more apparent in the long task. This hypothesis was not confirmed. Younger children showed differential estimation equally in the short and long tasks. Older children were more likely to show differential estimation in the short task, and accurate judgements in the long task. This suggests that greater exposure to the pattern of slide presentation facilitates accurate frequency estimation, at least for older children. The need for further study was discussed, especially concerning age differences and the effect of task length on frequency estimation. More investigation is also necessary to determine whether sex role flexibility is directly related to the strength of the individual's gender schema, and to its impact on information processing. Finally, it was concluded that children are sensitive to slight variations in frequency information; and that the frequency judgement paradigm is a subtle and effective means of detecting schema-influenced information processing.

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Chapter I

INTRODUCTION

The present study explored the biasing effects of gender schemata on children's memory of sex role information. One of the earliest ways individuals define themselves is by their maleness or femaleness. Young children understand the concept of gender identity more clearly when they focus on all the things that set them apart from the other sex. Differences in clothing, activities and preferences make the distinction between the sexes more salient. "The behaviour patterns which are differentially displayed by the sexes" are sex roles (Hargreaves, 1986). They serve as guidelines or rules of thumb about how to tell males from females and about how to approach the world. Yet once an individual's gender identity has been established, these guidelines may no longer be necessary to distinguish between the sexes or to identify oneself. Nevertheless, the rules of thumb about understanding the world evolve into regulations about what constitutes characteristic and appropriate behaviour in the world. Sex role stereotypes are beliefs about what activities, preferences and personality traits characterize males and which ones characterize females (Williams, Bennett & Best, 1975). They are the beliefs and expectations people

have about sex roles and sex differences. Those roles that are deemed typical of one sex are seen as uniquely suited to that sex and would be considered uncharacteristic of the other sex. When attitudes about sex roles are rigid they serve to restrict the optimal functioning of both sexes by limiting their behaviour, activities and occupational choices. Rigid sex role stereotypes may thus have a pervasive and pernicious impact on individuals of both sexes throughout their lives.

The last two decades have witnessed a flurry of activity in the field of sex role research (see e.g., Huston, 1983; 1985). It has already been determined, for example, that by the time children are three years old they can apply gender labels, associate sex typed objects and activities with the "appropriate" sex, and they have developed preferences for the "correct" toys (Kohlberg, 1966; Thompson, 1975). By the time they enter elementary school, most children already have an extensive knowledge of stereotypic sex role information.

Recently, growing numbers of researchers have been approaching the study of sex roles from a cognitive perspective and have been focusing on the acquisition of sex role stereotypes. In their investigations, Bem (1981) and Martin and Halverson (1981) developed schema theories to describe this acquisition. Bem (1981) proposed that sex typing originates from a tendency to process information in terms of a

"gender schema." According to Bem, the gender schema reflects the salience society has placed on the gender dichotomy: what activities, occupations, objects and traits are characteristically "masculine" or "feminine." Gender schemata can serve as guides to sex typed behaviour because they provide information as to which roles are appropriate and which roles should be avoided. The phenomenon of sex typing is then, at least in part, a product of gender schema processing.

Martin and Halverson (1981) suggested that a sex stereotype can be seen as a specific case of the gender schema in operation. The gender schema serves as a preconceived framework for organizing and interpreting information about sex roles. While this facilitates efficient information processing, it also creates expectations about how novel sex role information will be processed. In this way, sex stereotyping can be seen as a normal cognitive process which provides organization and structure to complex stimuli and aids in the assimilation of new stimuli. Thus, once gender schemata are in place, they contribute to biased information processing in the form of sex typing.

Martin and Halverson (1983) have generated two hypotheses of how gender schemata might be related to memory for sex role information in children. First, they predicted that gender schemata affect memory in such a way that schema-consistent content is selectively remembered and schema-

inconsistent content is forgotten. Their second prediction was that gender schemata would influence memory by distorting schema-inconsistent information so that it is inaccurately remembered as being schema-consistent.

The first prediction of Martin and Halverson (1983), that schema-consistent or stereotypic information would be more easily remembered, was borne out by their data. Children were shown pictures of males and females performing stereotypically masculine or feminine activities. Schema-consistent information (e.g., where a male actor performed a stereotypically masculine activity such as a boy fixing an oven) was better remembered than information that was inconsistent with gender schemata (e.g., where a male actor performed a stereotypically feminine activity such as a boy cooking).

Koblinsky, Cruse and Sugawara (1978) obtained similar results when they told stories to grade 5 children that described male and female characters performing both stereotypic (e.g., a boy fixing a bike) and counterstereotypic activities (e.g., a girl fixing a bike). Later, when they were asked to recall the content of the stories, these children remembered masculine activities performed by a male character and feminine activities performed by a female character better than feminine activities performed by a male character or masculine activities performed by a female character. Results similar to these have been reported by Kropp and Halverson (1983) and Liben and Signorella (1980).

The second prediction made by Martin and Halverson (1983) was that gender schemata would influence memory for sex role information by distorting schema-inconsistent or counterstereotypic information. This too was borne out by their data. Children tended to change the sex of the actor when recalling schema-inconsistent pictures. An earlier investigation by Cordua, McGraw and Drahtman (1979) yielded results that are comparable when interpreted in this light. Five- and 6-year-old children were shown a short movie depicting a male nurse or a female doctor. After viewing the film, these children reported that the nurse had been female and the doctor had been male. Similarly, Signorella and Liben (1984) have shown that when children are presented with information about males and females behaving in counterstereotypic ways, they are likely to change the sex of the actors in memory to be consistent with stereotypes.

The present investigation also examined children's memory for sex role information. However, the methodology was different from that used in previous research. The biasing effects of gender schemata on memory for sex role information were examined using a frequency judgement paradigm. The frequency estimation technique has been used in investigations of correlational beliefs (e.g., Chapman, 1967; Hamilton & Rose, 1980; Tversky & Kahneman, 1973). Sex stereotypes can be seen as specific cases of correlational beliefs based on prior knowledge. That is, a sex stereotype assumes

that a correlation exists between gender and personality traits, activities or occupations. If sex stereotypes are correlational beliefs, then the research on correlational beliefs is useful here.

Chapman (1967) investigated the "illusory correlation," a perceived associative bond between two events that causes a person to overestimate the frequency of their co-occurrence. The strength of the associative bond is based in part on prior knowledge and on familiarity with incidents where those two events were linked. When the associative bond between two events is perceived as strong, an illusory correlation develops, affecting frequency estimation. In his research with word pairs, Chapman (1967) has shown that people tend to overestimate the frequency of the co-occurrence of highly associated word pairs (e.g., "bacon-eggs") as compared with unrelated word pairs (e.g., "lion-eggs"), even when they have been presented equally frequently.

Tversky and Kahneman (1973) said that "illusory correlations" emerge because people judge the frequency of occurrence of events on the basis of how readily they can remember such events - on how available that information is to them. Events that are easily remembered are believed to have occurred more frequently. Memory for stereotypic events is selective, hence these events are more readily remembered. Therefore, stereotypic events are judged as occurring more frequently than unrelated or counterstereotypic events.

Research indicates that sex stereotypes occur even when correlations between sex and roles do not exist; that is, even when males and females show certain characteristics equally frequently (e.g., Maccoby, 1980; Maccoby & Jacklin, 1974; Oetzel, 1966). The present study was analogous to such situations and consequently it may provide one explanation of why stereotypes are difficult to change.

Hamilton and Rose (1980) examined stereotypic beliefs and obtained results consistent with the availability model of Tversky and Kahneman (1973). Although they did not examine sex stereotyping, their findings are relevant here because they demonstrated that stereotypes can have a biasing effect on frequency estimation. In two studies, subjects read sentences where the members of certain occupational groups were described by certain traits. These traits were schema-consistent for the occupational group (e.g., "helpful-doctor"), schema-inconsistent (e.g., "quiet-salesman"), or neutral (e.g., "humorous-doctor"). The sentences were presented under different frequency conditions (each sentence appearing 1 to 6 times). After the sentences were presented, subjects estimated how frequently each occupation was described by a certain trait. The results revealed illusory correlations: frequency estimates were more closely related to subjects' schemata of the occupations than to the actual frequencies of the stimuli presentation. For example, subjects estimated that the "helpful-doctor" pair oc-

curred more frequently than the "humorous-doctor" pair, even though both word pairs were presented equally often.

More recently, a frequency estimation method was used to examine children's memory for sex role information (Zanier, 1985). The actual frequency of traditional and nontraditional actor-activity pairs was varied such that there were 2 conditions: the schema-congruent condition, where there were more traditional than nontraditional pictures (e.g., 4 slides portraying a girl ironing and 1 slide portraying a boy ironing); and the schema-incongruent condition, where there were more nontraditional than traditional pictures (e.g., 4 slides portraying a girl sawing and 1 slide portraying a boy sawing). In the schema-congruent condition, children were accurate in estimating that the traditional pictures had been presented more frequently than the nontraditional pictures. However, when the nontraditional pictures were presented more often than the traditional pictures (schema-incongruent condition) children tended to say that the two types of pictures had occurred equally frequently.

As with the Zanier (1985) investigation, the present study explored children's memory for frequencies of actor-activity pairs. Unlike the previous study, each activity was performed by a male and a female actor an equal number of times. This facilitated direct comparisons of the traditional and nontraditional conditions (e.g., 2 slides of a

girl ironing versus 2 slides of a boy ironing) which was not possible in either the Zanier (1985) nor the Hamilton and Rose (1980) investigations.

Given that children recall stereotypic information more easily than counterstereotypic information (e.g., Martin & Halverson, 1983), it was hypothesized based on Tversky and Kahneman's availability model that they would estimate traditional or stereotypic scenarios as occurring more frequently than nontraditional or counterstereotypic scenarios, even if both kinds of scenarios occurred equally frequently. The major purpose of the present study was to examine this hypothesis, with a direct comparison of the stereotypic and counterstereotypic conditions.

Hasher and Zacks (1984) suggested that obtaining information about frequency is unaffected by task variables such as difficulty (e.g., length of lists). However, in their examination of children's memory for sex role information, Signorella and Liben (1984) found that as task difficulty increases, (i.e., as length of list increases) so do memory distortions, resulting in memories that are less accurate and more schema-consistent. Thus another purpose of the present study was to determine whether task difficulty (i.e., the number of items to be remembered) would affect children's frequency estimation of sex role information.

Hasher and Zacks (1984) also stated that obtaining information about frequency is unaffected by subject variables

such as age. However, in a study of immediate recall of sex role information that used preschoolers, first, fourth and seventh graders, Drakman et al. (1981) found that the seventh graders had the most accurate memories. The seventh graders made fewer errors when recalling counterstereotypic information than did the younger children. This suggests that children's memory for sex role information shows developmental trends: older children may be more likely to remember sex role information without distortions. Consequently, the present investigation explored possible age-related differences in this regard.

In the present study, children from grades 2 and 5 were shown slides of boys and girls performing traditionally masculine or feminine activities. The slide of a boy performing a certain activity and that of a girl performing the same activity were shown equally frequently (2, 3 or 4 times each, depending on the activity). After all the slides were presented, the children completed a frequency estimation questionnaire. One half of the children in each grade were shown a shorter set of slides and the remaining half were shown a longer set of slides. The main hypothesis of the present study was that children would estimate that the traditional pictures appeared more frequently than the nontraditional pictures, even though both types of pictures were actually presented equally often. Secondly, it was hypothesized that this trend would be more pronounced in the long

task condition, where the children were shown more pictures, and might have to rely more on their stereotypes than on their memories of the pictures in order to make frequency estimates. In the short task condition, children had fewer pictures to remember, and might therefore have more accurate memories of the pictures and less need to rely on their stereotypes in order to make frequency estimates.

It was predicted that most of the children would be moderately to highly sex typed, having gender schemata that reflect societal stereotypes (Fem, 1981). To this end, a stereotyping measure was administered to determine if the strength of individuals' gender schemata was related to the accuracy of their frequency estimates. It is possible that less stereotyped children would tend to make more accurate frequency estimates with fewer distortions.

Chapter II

METHOD

Subjects

The subjects were 64 children who attended two public elementary schools in a predominantly white, middle class urban community in Southwestern Ontario. Sixteen males and sixteen females from each of grades 2 (mean age=8-0; range=7-5 to 8-8) and 5 (mean age=11-3; range=10-6 to 11-10) were used. One half of the children in each grade were randomly assigned to a "long" task condition and the remaining half to a "short" task condition.

Materials

Sex Stereotyping Questionnaire. The first phase of this study involved administering a measure of sex stereotyping. This measure was derived from Liben and Signorella (1980) and Zanier (1985), and consists of a list of 21 masculine, feminine and neutral activities (7 of each). The children indicated whether males, females or both males and females can participate in each of these activities. Based on the number of neutral responses she or he gave, each child obtained a score on this measure.

Slides. There were 2 task lengths and therefore 2 sets of stimuli. The long task was comprised of two lists of 72

items. Each of these items contained a black and white line drawing of a boy or girl engaged in a particular activity. Six masculine activities (e.g., boxing, sawing) and six feminine activities (e.g., ironing, sewing) based on the work of Edelbrock and Sugawara (1978) were used as the main stimuli. Two masculine and 2 feminine activities were presented 4 times each with a male actor and 4 times each with a female actor. The next 2 masculine and 2 feminine activities were presented 3 times each with a male actor and 3 times each with a female actor. The remaining 2 masculine and 2 feminine activities were presented twice each with a male actor and twice each with a female actor. The design is illustrated in Table 1.

In addition, 2 neutral activities were used to create 8 "filler" slides: 4 were presented before the test items and 4 were presented after the test items to control for primacy and recency effects (see Table 1). Two versions of the 72 items were developed. These two lists differed in terms of the frequency conditions (i.e., 4, 3, or 2 times) assigned to each activity (e.g., "hammering" appeared 3 times in list A, while it appeared twice in list B). Within each list, the main test items were arranged randomly with the restriction that two slides of the same activity could not occur consecutively.

The short task was comprised of 36 items: 3 masculine and 3 feminine activities, each presented equally frequently

Table 1

Activities Used in Long Task, Short Task and Filler Slides

Activities	Frequency of presentation with a male and a female actor	
	List A	List B
<hr/>		
Long Task		
Masculine		
hammering	4	2
boxing	3	4
playing baseball	2	3
playing with a car	4	2
digging	3	4
sawing	2	3
Feminine		
ironing	4	2
feeding a baby	3	4
cooking	2	3
dishwashing	4	2
sweeping	3	4
sewing	2	3
<hr/>		
Short Task		
Masculine		
hammering	4	2
boxing	3	4
playing baseball	2	3
Feminine		
ironing	4	2
feeding a baby	3	4
cooking	2	3
<hr/>		
Filler Slides		
reading a book	2	2
playing with a dog	2	2
<hr/>		

with a male or female actor. One masculine and 1 feminine activity was presented 4 times with a male actor and 4 times with a female actor. The next masculine and feminine activity was presented 3 times with a male actor and 3 times with a female actor. The remaining masculine and feminine activity was presented twice with a male actor and twice with a female actor. The design is illustrated in Table 1. The 8 "filler" slides were again used to control for primacy and recency effects. Two versions of the 36 items were developed. Lists A and B for the easy task differed in terms of the frequency conditions assigned to each activity. Within each list, the main test items were arranged randomly with the restriction that two slides of the same activity could not occur consecutively.

Apparatus. The slides were presented on a rear projection screen. The 18 x 25.5 cm screen was mounted on the front of a 30 x 35 x 75.5 cm box. The slides were presented with a Kodak Ectographic Carousel slide projector. Slide presentations were controlled by a timer set at 5 second intervals.

Procedure

The children first completed the sex stereotyping questionnaire derived from Liben and Signorella (1980) and Zanier (1985). Then each child was tested individually on the frequency estimation task. Within each condition (short and long), one half of the children were presented with list A

while the remaining children were presented with list B. The two versions of the short and long conditions (list A and list B) were counterbalanced across sex and grade level. Before presenting the slides, the experimenter introduced the task to each child with the following instructions:

I am going to show you some slides. I want you to look at them carefully.

Immediately following the slide presentation, each child was tested on memory for the frequency of occurrence of each picture. Children in the long task condition were exposed to 24 different pictures (a boy/girl engaged in each of the 12 activities) in a random order and were asked to tell the experimenter how many times they saw each picture. Children in the short task condition were exposed to 12 different pictures (a boy/girl engaged in each of the 6 activities) in a random order and were asked to tell the experimenter how many times they saw each picture. This phase of the study was introduced by presenting one of the neutral, filler slides with the following instructions:

You see this slide? You saw it two times. I'm going to show you more slides and I would like you to tell me how many times you saw each one.

Chapter III

RESULTS

Under each of the frequency conditions (2, 3 and 4) children who did the long task made four frequency estimates for traditional actor-activity pairs (e.g., boy-sawing, girl-ironing) and four frequency estimates for nontraditional actor-activity pairs (e.g., girl-sawing, boy-ironing). For each of the frequency conditions, these four traditional and nontraditional estimates were averaged and used as dependent measures. Under each of the frequency conditions (2, 3 and 4) children who did the short task made two frequency estimates for traditional actor-activity pairs and two frequency estimates for nontraditional actor-activity pairs. For each of the frequency conditions, these two traditional and nontraditional estimates were averaged and used as dependent measures. Consequently there were six dependent measures for each child, because there were three frequency conditions: three estimates for traditional pictures and three estimates for nontraditional pictures. The mean frequency estimates for traditional and nontraditional pictures are summarized in Table 2 for the long and short tasks separately.

Table 2

Mean Frequency Estimates for Traditional and Nontraditional Pictures

Group	Traditional Pictures	Nontraditional Pictures
<hr/>		
Long Task		
Grade 2		
Girls	3.331	2.438
Boys	3.896	3.281
Grade 5		
Girls	2.726	2.881
Boys	3.042	2.823
Short Task		
Grade 2		
Girls	2.917	2.729
Boys	4.125	3.250
Grade 5		
Girls	3.313	2.854
Boys	3.000	2.771

The data were first analyzed using a 2 (grade) x 2 (sex of subject) x 2 (length of task: short vs. long) x 2 (type of picture: traditional vs. nontraditional) x 3 (frequency of slide presentation: 2, 3 or 4 times) analysis of variance (ANOVA) with repeated measures on the last two factors.

The analysis revealed that the main effect of frequency was significant, $F(2,112)=25.73$, $p<.0001$. Both younger and older children, and both boys and girls were sensitive to the relative frequency with which the pictures were presented. According to the results of Tukey's studentized range (HSD) test, the children judged that pictures which were presented four ($M=3.39$) or three ($M=3.12$) times appeared more frequently than pictures which were presented twice ($M=2.74$), $p<.01$. Children's frequency estimates were higher when pictures were presented four times ($M=3.39$) than when they were presented three times ($M=3.12$), $p<.05$.

The main effects of sex of subject and type of picture (traditional vs. nontraditional) were also significant, $F(1,56)=5.37$, $p<.05$ and $F(1,56)=25.14$, $p<.0001$, respectively. In addition, the following interactions were significant: grade x sex, $F(1,56)=5.66$, $p<.05$; grade x type of picture, $F(1,56)=6.55$, $p<.05$; and grade x sex x type of picture x length of task, $F(1,56)=4.80$, $p<.05$.

In order to interpret the significant four-way interaction, the data were collapsed across levels of frequency, yielding only 2 dependent measures for each child: one es-

timate for traditional pictures and one estimate for non-traditional pictures. These data were analyzed using a 2 (grade) x 2 (sex of subject) x 2 (length of task) x 2 (type of picture) ANOVA with repeated measures on the last factor. Once again, the grade x sex x type of picture x length of task interaction was significant, $F(1,56)=4.80$, $p<.05$.

The data from the short and long tasks were then analyzed separately. The significant four-way interaction that had appeared in the preliminary ANOVA can be explained by the fact that the grade x sex x type of picture interaction was significant for the short task, $F(1,28)=4.20$, $p<.05$, but not for the long task, $F(1,28)=1.25$, NS.

Further analysis of the significant grade x sex x type of picture interaction within the short task revealed that a sex x type of picture interaction was marginally significant for children in grade 2, $F(1,14)=4.32$, $p<.10$, while this interaction was nonsignificant for children in grade 5, $F(1,14)=0.58$, NS. The most pertinent data were that children in both grades judged traditional actor-activity pairs (grade 5 $M=3.16$, grade 2 $M=3.52$) as appearing more frequently than nontraditional actor-activity pairs (grade 5 $M=2.81$, grade 2 $M=2.99$), $F(1,14)=5.20$, $p<.05$ and $F(1,14)=10.33$, $p<.01$ for grades 2 and 5 respectively.

For the long task, the analysis revealed that the grade x type of picture interaction was significant, $F(1,28)=7.12$, $p<.05$. Younger children judged that the traditional pic-

tures ($M=3.61$) appeared more often than the nontraditional pictures ($M=2.86$), $p<.05$. Older children believed that the two types of pictures appeared about equally frequently (traditional $M=2.88$ vs. nontraditional $M=2.81$).

The findings in general, and the observed age-related differences in the long task in particular, may reflect differences in children's sex role stereotyping. In this regard, data from the sex stereotyping questionnaire were utilized. Recall that in order to assess their sex role stereotyping, the children were asked to classify 21 activities as masculine, feminine or neutral. Based on previous research, 14 of the questionnaire items are considered sex typed in contemporary North American society. When children classify sex typed items as neutral, it is considered indicative of their flexibility toward sex roles (Liben & Signorella, 1980). Thus a flexibility score was obtained for each child based on the number of sex typed activities she or he classified as neutral (maximum possible score=14; actual range=0 to 6).

In order to determine whether the children's sex typing was related to their responses on the frequency estimation task, their flexibility scores were examined. However, flexibility scores were not significantly correlated with children's performance on the frequency estimation task. Those children who had rigid stereotypes did not report that they saw traditional pictures more frequently than those

children who were more flexible. Of those children who were assigned to the long task condition, the flexibility scores of the grade 5 children ($\bar{M}=2.19$) were not higher than those of the grade 2 children ($\bar{M}=2.69$). Further, grade 5 children who did the long task ($\bar{M}=2.19$) were not more flexible than those grade 5 children who did the short task ($\bar{M}=2.81$).

Chapter IV

DISCUSSION

The principal hypothesis of the present study was that children would estimate stereotypic pictures as being more frequent than counterstereotypic pictures, even though both types of pictures actually appeared equally often. This hypothesis was generally confirmed. In the short task, the children made higher frequency estimates for traditional pictures than nontraditional pictures. In the long task, the same differential estimation occurred among younger children but was less evident among older children.

The present finding can be understood as an incident where gender schema theory (Martin & Halverson, 1983) and the availability model (Tversky & Kahneman, 1973) contributed to children's frequency estimation. According to the gender schema theory proposed by Martin and Halverson (1983), memory for stereotypic events is selective, hence they are better remembered than counterstereotypic events. The availability model of Tversky and Kahneman (1973) states that easily remembered events are judged as having occurred more often than events which are hard to remember. Children presumably remembered the sex typed actor-activity pairs better, and consequently believed that they occurred more often than the counterstereotypic pairs.

The sex typed nature of children's frequency judgements may reflect an internalized gender schema. The gender schema impacts information processing in insidious and significant ways. It is manifest that the gender schema is sufficiently potent to impair the memory of contradictory information. Empirical evidence of this phenomenon was obtained in the present study and in the research of numerous previous investigators (e.g., Martin & Halverson, 1983; Signorella & Liben, 1984; Zanier, 1985). Perhaps the same phenomenon occurs outside experimental settings as well. Certain activities, preferences and traits are perceived as being more characteristic of one sex than of the other. Events consistent with such stereotypes may strengthen the gender schema, but disconfirming evidence - albeit plentiful - is less salient and is poorly remembered. The erroneous nature of memory for sex role information is, therefore, germane to any discussion of why stereotypes are resistant to change. Because the processing of counterstereotypic information is faulty, its presence is unlikely to affect a change on the gender schema.

An analysis of the results of the frequency estimation task permits one to infer the presence of the gender schema. But a more direct procedure for uncovering sex role stereotypes was also utilized in this study. The results of the sex stereotyping questionnaire derived from Liben and Signorella (1980) and Zanier (1985), indicated that the children

in the present sample hold views about sex roles that are consistent with societal stereotypes and gender schemata. As expected, the children in the present sample are moderately to highly sex typed. The range of scores on the sex stereotyping questionnaire is limited; the highest scores are still only in the moderate range of flexibility. There were no truly "flexible" children in the sample; therefore we were unable to observe the effects of large variations in sex stereotyping on children's frequency estimation. Thus, children's flexibility scores on the sex stereotyping questionnaire did not correlate significantly with their frequency judgements.

Gender schema theory proposes that "highly flexible" individuals are those who rely less on the gender dichotomy and stereotypes in order to process information. Consequently, based on gender schema theory, one would expect flexible persons to make accurate frequency estimates, judging that traditional and nontraditional pictures were presented equally often. However, even with flexible attitudes toward sex roles, one may still be influenced by the gender schema. That is, the gender dichotomy may still serve as an underlying frame of reference, and may influence the way in which activities are perceived and categorized, even if one believes in principle that activities do not have to be associated with one sex more than with the other. Indeed, people who are flexible about sex roles may show the same

pattern of differential estimation on a frequency judgement task that "rigid" people do, estimating traditional pictures as more frequent than nontraditional pictures. Conversely, people who are very flexible about sex roles may be more attuned and receptive to counterstereotypic information precisely because it contradicts the gender schema. Therefore, they may find nontraditional information more striking than traditional information. If so, they may actually give higher estimates to nontraditional actor-activity pairs on a frequency judgement task. Systematic investigation of a large sample with a wide range of flexibility scores might clarify the relationships between sex role flexibility, the gender schema, and memory of sex role information.

Another hypothesis of the present study was that differential estimation would be more evident in the longer task than in the shorter task. There were more slides to remember in the long task, ostensibly increasing the likelihood of biased estimates. It was expected that more accurate judgements would be seen among children assigned to the short task. Contrary to predictions, among young children frequency estimates were equally biased in both task lengths. Furthermore, as already indicated, the frequency judgements of older children were in fact more biased in the short task, and more accurate in the long task.

In the long task, the finding that grade 5 children's judgements were more accurate than those of grade 2 children

is consistent with the conclusion of Drabman et al. (1981), that older children are more likely to remember sex role information without distortions. It is puzzling, however, that the older subjects were more accurate in the long task rather than in the short task. The possibility was entertained that the older children who were assigned to the long task had more flexible gender schemata than those assigned to the short task condition. But data from the sex stereotyping questionnaire indicated that the two groups did not differ with respect to sex role flexibility. Rather, there may have been more opportunity in the long task to detect the pattern of slide presentation; specifically, that traditional and nontraditional versions of each activity were shown equally often. Greater exposure to the slides may have facilitated accurate estimation in the older children who may have been better able to detect such a pattern. Replications and more investigation using larger samples of various ages and various task lengths, may help to clarify the effect of task length on frequency estimation of sex role information.

Research on frequency suggests that most people are sensitive to variations in the frequency with which stimuli are presented (Hasher & Zacks, 1984). It was predicted that children would be sensitive to the frequency with which slides were presented, and the results confirmed this. Children correctly judged that slides which were presented

twice appeared less often than slides which were presented three or four times, and that slides which were presented three times appeared less often than slides which were presented four times. Because of this sensitivity to variations in frequency, and because children's biased frequency estimation was consistent with the results of the sex stereotyping questionnaire, it appears that the frequency estimation technique provides a subtle and powerful measure of the effects of schemata on cognition. The current exposition, and those of Hamilton and Bose (1980) and Zanier (1985) provide support for the utility of the frequency judgement paradigm in research concerning stereotypes and cognition.

Moreover, if further research indicates that fluctuations in sex role flexibility (as measured by instruments such as the sex stereotyping questionnaire) are directly related to variations in frequency judgements, then the frequency estimation technique may be a viable, sophisticated alternative to direct inquiry procedures for measuring stereotypes. Thus, the response biases inherent in more direct methods can be avoided.

Finally, when sex differences are found in investigations of sex role stereotypes, boys are typically more stereotyped than girls (Huston, 1983). Zanier (1985) found that boys' frequency estimates were more sex typed than those of girls. However this finding was not replicated in the present study.

In conclusion, the most critical hypothesis of the current study was generally confirmed. Children, especially younger ones, estimated that stereotypic pictures appeared more often than counterstereotypic pictures, even though both were actually presented equally often. This finding can be explained by the gender schema theory proposed by Martin and Halverson (1983), particularly that memory for sex role information is selective. By selectively processing and distorting sex role information, the gender schema maintains stereotypes, even in the face of disconfirming evidence. Other conclusions derived from the present study are: that children are sensitive to information about frequency; and that the frequency estimation technique is a subtle and effective means of detecting schema-influenced information processing. Further investigations or larger samples can address the issue of whether sex role flexibility is directly related to the strength of the individual's gender schema, and to its impact on information processing. Age and sex differences can also be explored in more detail, as well as the influence of task length on frequency estimation.

Appendix A

THE EMERGENCE OF SEX ROLE STEREOTYPES

What are little girls made of? Sugar and
spice, and everything nice; that's what
little girls are made of.

What are little boys made of? Snips and
snails and puppy-dogs' tails; that's what
little boys are made of.

Nursery Rhyme.

A fundamental way in which humans understand themselves, and organize and interpret their world, is by the dimension of gender. Beyond mere biological sex, the concept of gender encompasses a plethora of meanings, beliefs and expectations. The present paper examines the emergence of sex role stereotypes: beliefs and expectations about gender. The significance of sex roles will be dealt with first, followed by a review of research findings concerning their development. Next, the justification for sex role stereotypes will be investigated, based on a survey of the literature on actual sex differences in psychological domains. Finally, the various theoretical orientations toward the development of sex roles and sex role stereotyping will be explored.

One of the most salient features of an individual's sense of self is gender identity: the awareness of one's

own biological sex. But when, as children, we define ourselves as male or female, we also incorporate in that definition the typical characteristics of males and females in our culture. Young children comprehend their own gender identities more clearly when they discover as many contrasts as possible between themselves and the other sex. The distinction between males and females is more explicitly demarcated to young children when they focus on differences between the sexes in their clothing, behaviour, preferences and personality traits (e.g., Martin & Halverson, 1981). These descriptions of the different behaviour patterns seen in males and females are sex roles (Hargreaves, 1986). They serve as heuristics or rules of thumb about how to tell the sexes apart and about how to identify oneself. As children grow and their gender identities have been established, the need to differentiate between masculine and feminine characteristics may no longer be as crucial. But by the time children enter kindergarten, the descriptions used to discern between the sexes - sex roles - may have become ingrained, and may have evolved into prescriptions about what constitutes characteristic or appropriate behaviour for each sex - sex role stereotypes (Greenglass, 1982; Hargreaves, 1986).

In addition to the obvious differences in clothing and interests, sex role stereotypes develop in response to perceived differences in the personalities of the average male

and female (Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972; Rosenkrantz, Vogel, Bee, Broverman & Broverman, 1968). In North American society males have traditionally been described as more assertive, dominant and aggressive than females. Males have also been considered more independent, competent, objective, self-confident and ambitious, suggesting that their strengths lie in leadership, problem resolution and the world of business. Women in this society have traditionally been viewed as nurturant, kind, friendly, warm, and as having special talents in interpersonal skills and childrearing. However, they have been considered too passive, dependent, emotional, and too lacking in self-confidence to be successful entrepreneurs and leaders (Broverman et al., 1972; Rosenkrantz et al., 1968).

Because sex role stereotypes are generalized expectations about differences between the average male and female, they are often inaccurate descriptions of a specific male or female. Not all females possess every "feminine" characteristic, and some may possess some "masculine" ones; likewise, not all males possess every "masculine" characteristic, and some may possess some "feminine" ones. "Thus, by their very nature, stereotypes cannot take into account the wide range of possible behaviours and traits that usually characterize the individual woman or man" (Greenglass, 1982, p. 12).

Moreover, when attitudes about sex roles are rigidly held, they not only affect expectations about sex differenc-

es in the world, they may foster further differences. For example, an individual who is highly sex typed may view nurturant behaviour in men, or assertive behaviour in women as inappropriate. These attitudes may limit the individual's own behavioural repertoire, thereby facilitating sex typed behaviour, and reducing or eliminating behaviour considered sex-inappropriate. For example, a highly sex typed man, who believes males should not be nurturant, may avoid child-care responsibilities and may not have the opportunity to be close and supportive to his own children, resulting in his being less nurturant. Thus, sex role stereotypes can function as a self-fulfilling prophecy, restricting the optimal functioning of both sexes, by limiting their behaviour, activities and occupational choices.

The Development of Knowledge about Sex Roles

Knowledge about sex roles emerges very early in life, well before gender identity is firmly established (Frieze et al., 1978; Huston, 1983). Children as young as 14 months show some preferences for sex typed toys (Smith & Taglish, 1977) and by age 3 these preferences are consistent (Conner & Serbin, 1977; Kohlberg, 1966). Three-year-olds can accurately sex type household items (Thompson, 1975). They also prefer same-sex playmates (Jacklin & Maccoby, 1978) and this tendency continues throughout childhood (Maccoby, 1980).

Young children sex type their own activities; at 3 1/2 they begin to categorize boys' and girls' activities relia-

bly (Flerx, Fidler & Rogers, 1976). Kindergarteners know more about "sex-appropriate" activities, recognize and recall them better on memory tasks, and prefer to do them more than "sex-inappropriate" activities (Madleman, 1970; 1974).

As children learn more about the world around them, they become able to classify adult activities and occupations as masculine or feminine. Four-year-olds can sex type adult activities, and state that they would prefer to do those activities considered appropriate for their sex (Edelbrock & Sugawara, 1978). Kindergarteners categorize occupations according to traditional stereotypes (Garrett, Ein & Tremaine, 1977; Rosenthal & Chapman, 1982). Moreover, they state personal preferences for highly stereotypic occupations: boys prefer to be firefighters and girls prefer to be nurses, for example (Garrett, et al., 1977; Scheresky, 1976). When kindergarteners are shown videotapes of adults in counterstereotypic occupational roles (i.e., male nurses, female physicians) they tend to relabel the adults to be consistent with stereotypes: male nurses are called "doctors" and female physicians are called "nurses" (Cordova, McGraw & Erabman, 1979).

Children as young as 3 evince sex typing and can correctly label their own sex (Thompson, 1973) but they are often unable to reliably classify the sex of others (Thompson & Bentler, 1971). Further, most of them have yet to acquire "gender constancy:" the knowledge that one's gender remains

static, regardless of changes in clothes, hairstyles, activities or roles (DeVries, 1969; Kohlberg, 1966). Thus, very young children show evidence of sex typing before they fully understand the immutable nature of their gender identities (Huston, 1983). By 5 most children correctly label the sex of others (Thompson & Bentler, 1971) and by 6 or 7 they have fully acquired gender constancy (DeVries, 1969; Kohlberg, 1966).

Once gender constancy has been established, children's awareness of sex roles increases and grows more refined (Huston, 1983). Concurrently, they begin to comprehend that most sex typed activities and behaviours are cultural prescriptions, and do not affect one's gender identity; in other words, stereotypic behaviour does not determine one's maleness or femaleness. Thus, in middle childhood, children grow more flexible in their theoretical understanding of sex roles, acknowledging that exceptions to stereotypes are possible. Conversely, children's own behavioural and attitudinal preferences grow more consistent with stereotypes (Huston, 1983).

When children are asked to state a preference as to whom they would choose to do a job for them (a male or female), their responses are stereotyped. Children as young as 5 prefer that the job be performed by a person of the traditional sex. Stereotyping in this regard increases with age until at least grade 2 (Tremaine, Schau & Busch, 1982).

Similarly, when children evaluate the competence of males and females in various occupational roles, their responses are sex typed. At 5 1/2 they believe a person of the traditional sex would be more competent in the job. Sex role stereotyping with respect to occupational competence increases until age 9 (Cann & Haight, 1982).

Children remain relatively unsure about the sex typing of personality traits, even after they are certain of the classification of objects, activities and occupations (Huston, 1985). Preschoolers do begin to categorize attributes as masculine or feminine (Kuhn et al., 1978; Urberg, 1982). However it is only by the age of 8 that children accurately and consistently stereotype personality characteristics such as aggression, strength, emotionality and soft-heartedness (Best et al., 1977; Williams, Bennett & Best, 1975). Interestingly, in middle childhood (grades 4 through 6) those traits associated with one's own sex are judged more favourably (Silvern, 1977). But between middle and late childhood, boys continue to prefer stereotypically masculine behaviours and attributes, while girls cease to evaluate feminine characteristics as more desirable (Huston, 1983). Partly, this may be a reflection of boys' greater tendency to sex type. However, some research indicates that girls begin to prefer masculine activities and to perceive masculine traits in themselves at this age. Huston (1983) points out that this does not appear to be a product of social

changes brought on by the feminist era, but rather that it is a more constant developmental trend. It is likely that, regardless of sex, older children evaluate masculine attributes more favourably for much the same reason most adults do: males have greater prestige in society (Broverman et al., 1972).

Researchers are only beginning to examine sex role development beyond childhood. Some investigators suggest that as children move from late childhood into adolescence, they grow slightly more flexible about gender beliefs concerning occupations and attributes (Emmerich & Shepard, 1982; Pleck, 1975). Nevertheless, sex stereotypes are still observed in studies of personality characteristics, domestic, occupational and social activities (Hollin, 1986).

In adult development also, there is some evidence to indicate that attitudes toward sex roles very gradually become less rigid, particularly attitudes toward personality traits (Taylor, 1986). Granted, most adults do rate masculine characteristics as more desirable, a finding often attributed to males' greater power and status in society (Broverman et al., 1972). Yet research with subjects in late adulthood indicates that both sexes eventually become more accepting of people with certain nontraditional attributes (Neugarten, 1968). Urberg and Labouvie Vief (1976) found that this may be related to the social desirability of the attributes involved: older adults seem to be more flexible

about those sex typed traits that are seen as fundamentally valuable in either sex (e.g., achievement, self-confidence, affiliation, intraception).

It is apparent from this review of the developmental literature that beliefs about sex differences emerge early, are widely held, and have a pervasive influence on the lives of boys and girls and men and women. A large body of behavioural science research has examined whether these beliefs are grounded in reality.

Sex Differences in Psychological Domains

There is empirical evidence for some sex differences in psychological domains which are consistent with stereotypes. This section provides an overview of actual sex differences in cognition and personality. A caveat must be added that psychological sex differences are only averages; substantial variation exists within each sex. Moreover, Maccoby (1980) cautions that "the sexes are more alike than different, and any average sex difference must be seen from the perspective of overall similarity" (p. 204).

Cognition. Girls are typically believed to have better verbal skills than boys. On average, females do show a slight tendency to outperform males on memory tasks involving verbal content (e.g., word lists), especially after the age of 7; however neither sex appears to have a better memory (Maccoby & Jacklin, 1974). Indeed, the superior performance of girls on verbal memory tasks may reflect their gen-

eral verbal abilities. Very young children do not show sex differences in verbal ability, but by age 10 or 11, girls outperform boys in tests of spelling, grammar and word fluency. This tendency continues throughout the elementary and secondary school years. Contrary to popular belief, however, there are no sex differences with respect to reading skills, verbal reasoning or loquacity (Maccoby & Jacklin, 1974; Sadker & Sadker, 1985).

Boys are believed to excel in mathematics. To some degree the research with older children provides support for this contention. Boys and girls do not differ in basic arithmetic skills, but in the senior years of elementary school, boys outperform girls in mathematical reasoning and problem solving. This difference increases throughout high school (Frieze et al., 1978). The difference may be accounted for by the sex typed content of many mathematical problems; they are often based on stereotypically masculine interests, such as carpentry, construction and automobiles. Girls' performance on these problems typically improves when the questions are reworded using neutral or feminine content (Leder, 1974). It has been observed in research that girls' performance on math problems may be hindered by the presence of a male experimenter (Frieze et al., 1978). A female experimenter is often conducive to improved performance in female subjects. The same principle may hold true in the classroom: the majority of high school math teachers are

male; more female teachers may facilitate girls' performance (Frieze et al., 1978).

Another possible explanation of boys' superior mathematics skills may involve their spatial abilities. Young children do not show sex differences in spatial skills, however, as is the case with mathematics, boys tend to outperform girls in spatial problems during the high school years (Maccoby, 1966; Maccoby & Jacklin, 1974).

Personality. In addition to research on sex differences in cognition, some experimenters have focused on uncovering sex differences in personality domains. It is commonly thought, for example, that boys are more active than girls. Jacklin and Maccoby (1978) found no sex differences in this regard in the first two years of life. After that age, many researchers still find no sex differences, but when they do, boys are more active. This may be related to the amount of space available and the kinds of toys or equipment provided (e.g., swings, trampolines). Boys may have more access to physical environments that facilitate greater activity (Maccoby, 1980).

Males are also widely believed to be more aggressive than females. Studies of overt physical aggression, with various age groups and in different cultures, provides strong support for this belief. Studies of aggressive feelings and nonphysical forms of aggression, though, reveal few sex differences. Girls are as likely as boys to display

verbal and indirect aggression, such as excluding newcomers from a social group (Freize et al., 1978; Oetzel, 1966). Moreover, they may be as physically aggressive as boys if they receive reinforcement for this behaviour (Bandura, Ross & Ross, 1961).

Females are believed to have superior interpersonal skills and greater affiliative needs. However, neither sex has consistently been found more gregarious (Frieze et al., 1978). Nevertheless, some sex differences are evident in the specific nature of children's social play. Preschoolers segregate themselves into same-sex play groups and direct more social behaviour toward individuals of their own sex; this trend continues throughout elementary school (Jacklin & Maccoby, 1978). In middle childhood, boys tend to play in larger, less cohesive groups, and girls tend to play in smaller groups of close friends (Maccoby, 1980).

In most societies, women are seen as uniquely suited to child-rearing. In large part, this is an extension of the female's biological importance as the one who carries, bears and feeds children. Accordingly, nurturance and child-care skills are encouraged in girls. Yet recently, as more mothers work outside the home, and as fathers' role in child-care takes on new significance, researchers have questioned whether one sex is inherently "better" with children. On average, girls and women do appear more responsive and nurturant toward infants and young children (Maccoby, 1980).

But they are not necessarily uniquely suited to interacting with children. Males who have had frequent contact with children are just as likely to respond to them and to interact with them as females. They may, however, respond differently; males are more likely to play with children, and females are more likely to comfort and soothe them (Maccoby, 1980).

Females are often believed to be more dependent than males. In self-report studies of older children and adults, females often do rate themselves as more dependent than males. Likewise, when teachers and parents describe children, girls may be rated as more dependent than boys. These studies, of course, may be confounded with the stereotypes and expectations of the raters (Frieze et al., 1978). Notably, observational studies of young children have found no differences or inconsistent results as to which sex actually displays more dependent behaviour (e.g., help-seeking, proximity-seeking and resistance to separation from a parent), (Maccoby & Jacklin, 1974; Getzel, 1966).

Besides the difference in dependency, women are perceived as more emotional and anxious than men. As with dependency, sex differences in the stereotypic direction tend to be found in self-report measures (Getzel, 1966). However, observational studies of anxiety and fearfulness in young children have not yielded consistent results (Frieze et al., 1978).

Males are considered to be more self-confident than females, possessing more positive self-concepts. General measures of self-esteem do not indicate sex differences (Frieze et al., 1978). Females do, however, have more negative attitudes toward their own abilities and achievements. Girls and women are more likely than boys and men to evaluate themselves as less competent in school and work, and less likely to succeed (Horner, 1972; Maccoby & Jacklin, 1974).

The Origin of Sex Differences

It is manifest in this brief survey of the literature that some sex differences in psychological domains do exist. It is of interest to determine whether these sex differences are naturally occurring and have a biological basis, or whether they are products of socialization. Frieze et al. (1978), Huston (1983) and Singleton (1986) provide summaries of studies concerned with the biological origins of sex differences. They conclude that, as yet, there is insufficient evidence for a primarily biological explanation of sex differences in cognition, interests and personality. Moreover, many, if not most, psychological sex differences emerge in middle or late childhood, suggesting that they may not be innate. Rather, the majority of researchers have attributed most sex differences primarily to the differential socialization of males and females. A number of social scientists have explored sex roles as a cross-cultural and sociological

phenomenon. Frieze et al. (1978), Huston (1983) and Singleton (1986) provide brief overviews of sociological and anthropological perspectives of sex role socialization.

Common agents of socialization are parents, siblings, schools, peers and the mass media (Huston, 1983). It is through exposure to these elements of society that societal sex role stereotypes are learned and internalized. "Since the stereotypes are all-pervasive in Western society ... it seems very likely that they will shape sex-roles. Beliefs about the behaviour of males and females may themselves in part determine that behaviour, and vice versa" (Hargreaves, 1986, p. 27). A number of psychological theories have been advanced to explain the processes of sex role socialization and sex stereotyping. Interestingly, these theories closely reflect historical changes in societal attitudes toward sex roles (Huston, 1985).

Psychological Theories of Sex Role Socialization

Psychodynamic Theories. For the first two-thirds of this century, theorists approached the field of sex role research with "the assumption that acquisition of an 'appropriate' sex role was crucial for normal, healthy development" (Huston, 1985, p. 1). The earliest, and arguably most influential psychological explanation of why sex roles emerge was proposed by Freud (1925/1959). Through the resolution of the Oedipus complex, the child identified with the same sex parent. The same sex parent was the model upon

whom the child developed her or his own superego or conscience, and learned appropriate adult behaviour, including sex role behaviour. Freud's account was most articulate for male development, and less comprehensive for female development. A number of psychodynamic writers, particularly women, have since developed feminist psychodynamic theories. Although in many ways these theories are radically different from Freud's, sex role development is still seen as originating in family and intrapsychic dynamics. Both the traditional Freudian perspective and the feminist psychodynamic perspective are briefly reviewed here.

In Freud's account of the Oedipus complex, because the young boy perceives his father as a rival for the affections of his mother, he develops "castration anxiety:" the fear that his father will retaliate by castrating him. As a result of this fear of retaliation, the boy represses his desire for his mother and presumes a "defensive" identification with his father. In so doing, he gradually acquires the superego or conscience of his father, as well as his masculine behaviours and personality characteristics.

Freud believed that the young girl first identifies with her mother because she is the primary caretaker. But when the girl becomes aware of anatomical differences between males and females, she recognizes that she lacks a penis, and develops "penis envy." Like herself, her mother lacks a male organ. Because of this perceived deficiency,

the girl switches alliances and seeks the affection of the father. Finally, when she realizes that a male organ is an unattainable goal for herself, she identifies with her mother again, and acquires "appropriately" feminine characteristics and behaviours.

Freud believed that penis envy was the source of females' feelings of inferiority and of their acceptance of a submissive role in society. A number of writers (e.g., Horney, 1932; Lerner, 1978) have suggested that it is actually males who envy the child-bearing and nursing capabilities of females. As mothers, women are generally the primary caretakers. The young child (of either sex) perceives the mother as omnipotent: the sole source of sustenance, nurturance and gratification, as well as of punishment and anger. Because of the ensuing feelings of vulnerability and helplessness, society has come to devalue mothers, and women in general (Huston, 1983). Thus, men assume a dominant role to reassert their power, and women accept a submissive role because they devalue their own sex.

Social Learning Theories. Behaviourism emerged in mid-century, gradually growing more sophisticated and gaining acceptance over the next two decades. Theorists began to analyze human social behaviour in terms of learning principles rather than merely in terms of intrapsychic dynamics. Social learning theorists view sex role behaviour as merely another kind of social behaviour. Sex typed behaviour is

seen, in part, as the product of operant conditioning (Mischel, 1970), and there is considerable empirical support for this contention. Males and females are reinforced for behaviour that society considers sex-appropriate, and are punished for behaviour that is considered sex-inappropriate. For example, parents and nursery-school teachers reinforce sex-appropriate play behaviour in young children, and disapprove of counterstereotypic play activities (Fagot, 1977; Fling & Manosevitz, 1972). Moreover, when children are reinforced for counterstereotypic behaviour (i.e., aggression in girls), the frequency of that behaviour increases (Bandura, Ross & Ross, 1961). Clearly, sex role behaviour can be learned through direct reinforcement.

Additionally, Bandura (1977) and Mischel (1970; 1979) have proposed that children can acquire sex typed behaviour by observational learning. Because parents, teachers, and the other adults in a child's life model traditional sex role behaviour, children's own behaviour becomes sex typed.

Bandura (1977) and Mischel (1979) have also advanced cognitive social learning theories which are relevant to the development of sex role behaviour. Based on their reinforcement histories, children formulate expectancies about the possible consequences of future behaviours. These expectancies then influence future response choices. A child who has been rewarded only for traditional behaviour is unlikely to behave in a nontraditional manner in the future because she or he will expect punishment and censure.

Cognitive-Developmental Theory. The last two decades have witnessed the "cognitive revolution" in social and developmental psychology (Huston, 1985). Cognitive theories explain behaviour not primarily in terms of motivation, intrapsychic dynamics and reinforcement histories, but as first and foremost a product of the "ways in which people conceptualize and interpret their social worlds" (Huston, 1985, p.8). The earliest and most influential cognitive-developmental theorist to address the topic of sex typing was Kohlberg (1966). Guided by Piagetian theory, Kohlberg proposed that children spontaneously construct the categories of "male" and "female" as a means of organizing stimuli in their social environment. Kohlberg (1966) believed that children classify on the basis of sex because physical differences between males and females are strikingly obvious, thereby making gender one of the most salient social categories. As children become aware of these two categories, and how they themselves can be classified in them, their gender identity emerges. The gender identity is one's awareness of oneself as male or female. Gradually, children also classify activities and objects in terms of gender categories. "That is, they use gender as an 'organizer' for much of the information in their social world. These categories form the basis for later stereotypes" (Frieze et al., 1978, p.125).

By the age of 6 or 7, most children have discovered that gender is invariable, or in Kohlberg's words, they have acquired "gender constancy." Kohlberg believed that once concrete operational thinking emerged in middle childhood, and once gender constancy was established, children would have more flexible concepts about sex roles. Research indicates that as children grow older, their theoretical understanding of sex roles does grow more flexible. They come to realize that sex roles and stereotypes are culturally relative social conventions (Huston, 1983; 1985).

Nevertheless, based on the gender identity, the child evaluates the characteristics of her or his own sex more favourably than those of the other sex. Kohlberg proposed that this leads to the selective imitation of behaviours that are considered sex-appropriate. Eventually, the child develops an identification with the same sex parent, which facilitates further observational learning and sex typed behaviour. Thus, Kohlberg's model of sex role acquisition asserts that cognitions and concepts about gender precede, but do not nullify, sex role learning and same-sex identification. Research confirms that as children grow older, their attitudinal and behavioural preferences grow more sex typed, even though they also recognize that sex role stereotypes are culturally prescribed (Huston, 1983).

Gender Schema Theories. A number of contemporary theorists have been approaching sex role acquisition from an in-

formation-processing perspective (Bem, 1981; Markus, Crane, Bernstein & Siladi, 1982; Martin & Halverson, 1981). Drawing on Kohlberg's (1966) theory, Bem (1981) proposed that the young child develops a "gender schema" or organizing principle in order to process information. She believes that the gender schema originates in society's emphasis on the gender dichotomy: what activities, occupations, objects and traits are characteristically "masculine" or "feminine." According to Bem, the gender schema stems from cultural sex role prescriptions, and not, as Kohlberg (1966) proposed, from the child's own recognition of physical differences between the sexes.

Because the gender schema serves as an organizing framework for processing sex role information, it creates expectations about how novel information will be processed. Children assimilate new information into the gender schema. Thus, once the gender schema is in place, it contributes to biased information processing in the form of sex typing (Martin & Halverson, 1981). Specifically, stereotypic information, which is consistent with the gender schema, is better remembered than neutral or counterstereotypic information. Moreover, memory of counterstereotypic information, which disconfirms the gender schema, is prone to distortions (Martin & Halverson, 1983). "Gender schemas can lead (children) to ignore information that does not fit the schema or to distort perceptions to make them more consistent with the

schema" (Huston, 1985, p.9). Thus, the gender schema maintains and perpetuates sex role stereotypes.

Bem views the gender schema as generally exerting a negative influence on development. Guided by the gender schema, males and females avoid counterstereotypic behaviours, even when those behaviours may be more adaptive in a particular situation. This can inhibit the ability of both sexes to meet the demands of contemporary society. Bem (1975) proposed that "androgynous" individuals - those with both traditionally masculine and traditionally feminine characteristics - are more psychologically healthy, and are better equipped to handle the challenges of modern life.

Largely as a result of the feminist movement, society has become more accepting of sexual equality in the last two or three decades. Social scientists have also been affected by this trend. Thus, "androgyny," or sex role flexibility, has become the current ideal in sex role development.

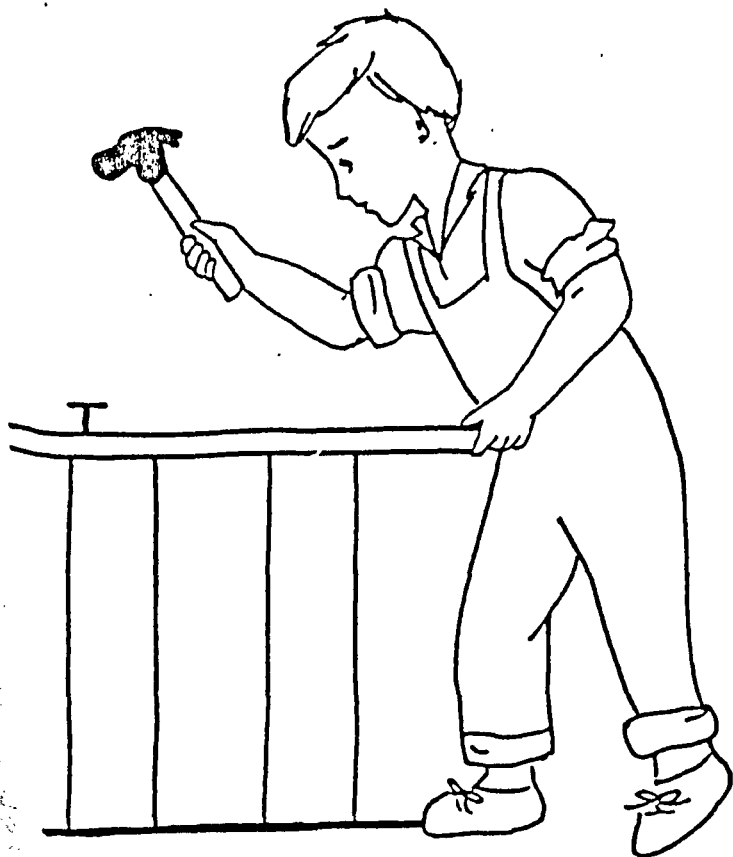
The Evolution in Attitudes toward Sex Roles

Paralleling the evolution in societal attitudes toward the sexes during this century, psychology has seen an evolution in its approach to the study of sex role development. Theorists have moved from valuing the acquisition of "appropriate," traditional sex roles, to valuing the acquisition of an androgynous and flexible approach to sex roles. But despite the changes, gender remains a basic means of organ-

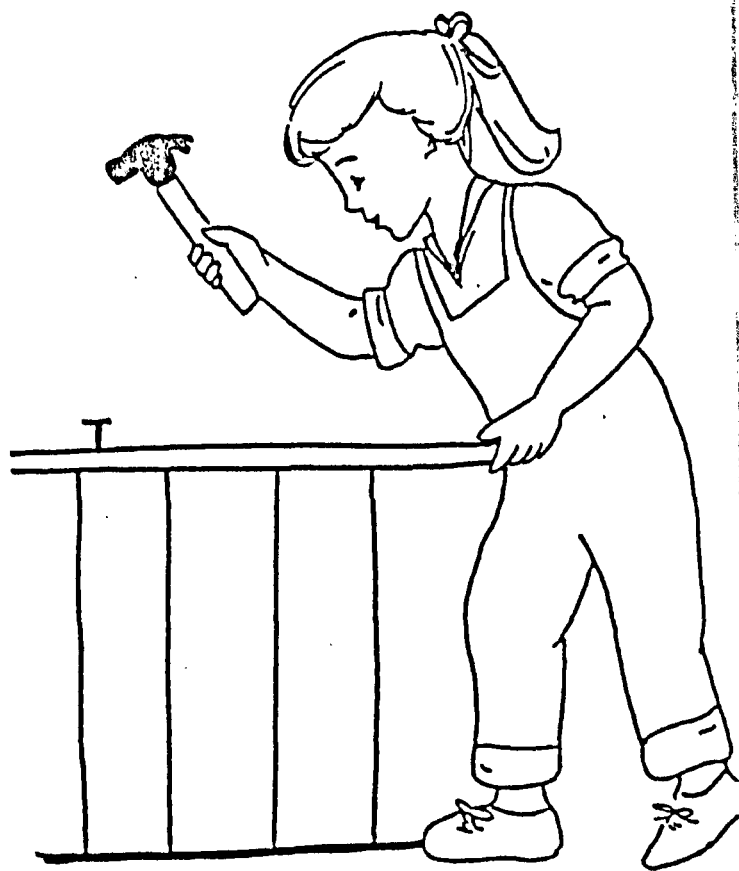
izing and classifying information, and it is undoubtedly unrealistic to expect its disappearance in the near future (Huston, 1983).

Although contemporary research is still value-laden, it can foster understanding of how gender categories are used to organize the world, of when they are effective, and of when they are not. If one is aware of the inaccuracies and distortions inherent in one's own processing of sex role information, one is less likely to be restricted by the workings of the gender schema. It is perhaps inevitable that gender concepts have a pervasive influence on the lives of children and adults. However, the deleterious effects of that influence may be avoided through future sex role research.

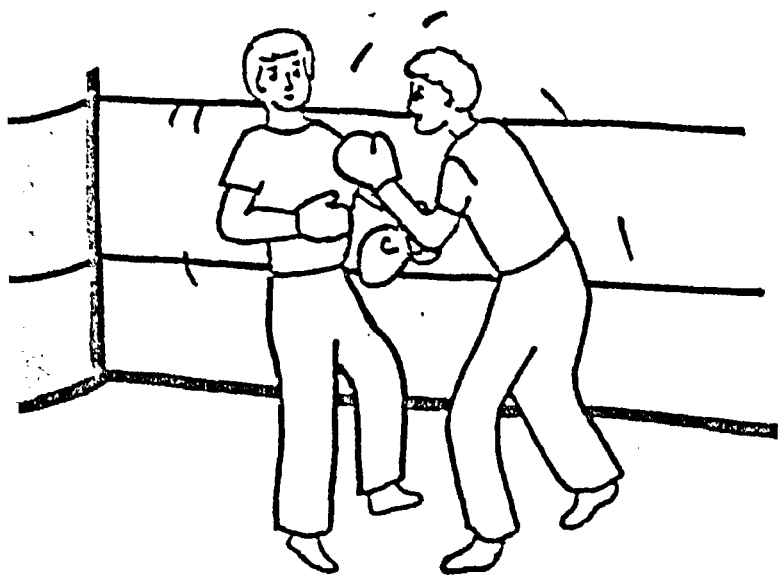
Appendix B
DRAWINGS USED IN SLIDES



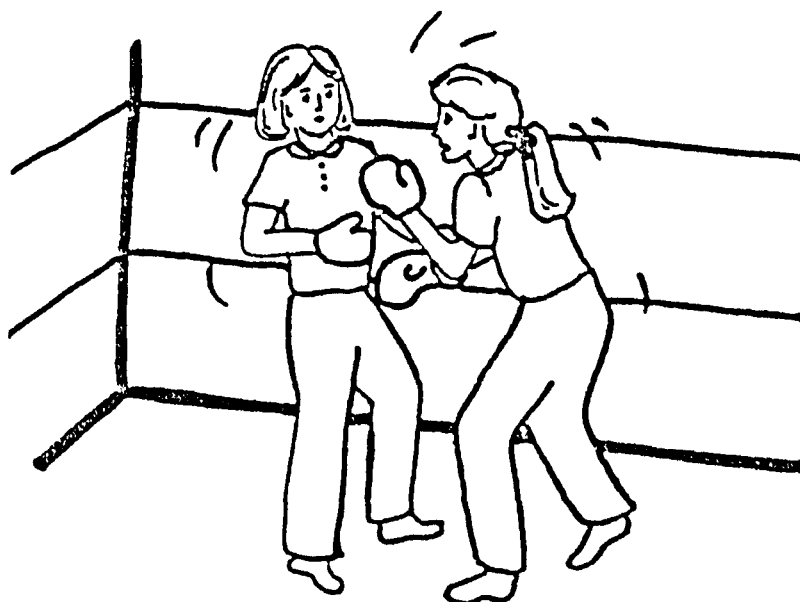
boy hammering
(traditional)



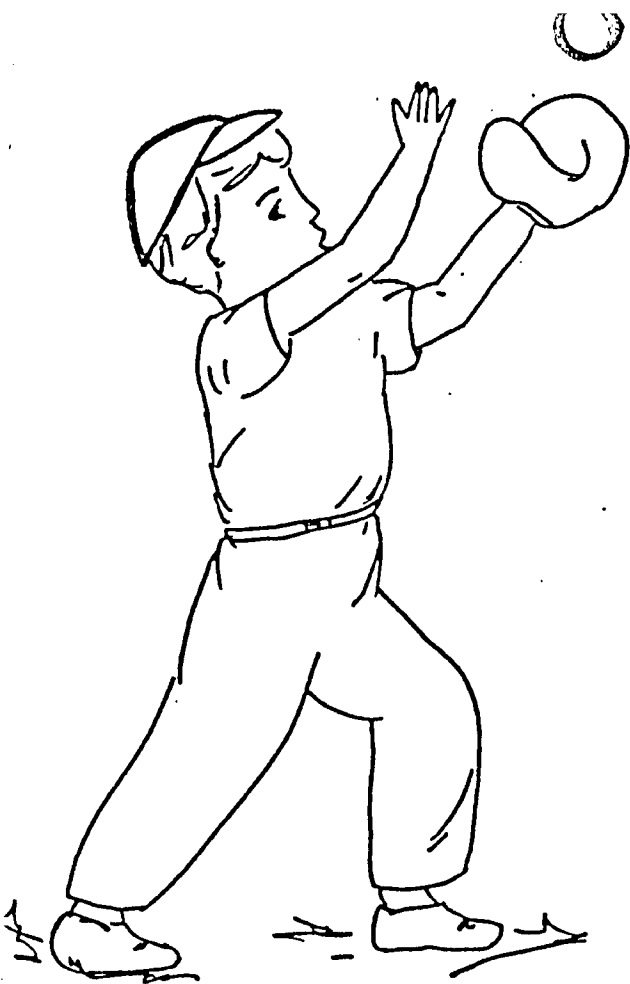
girl hammering
(nontraditional)



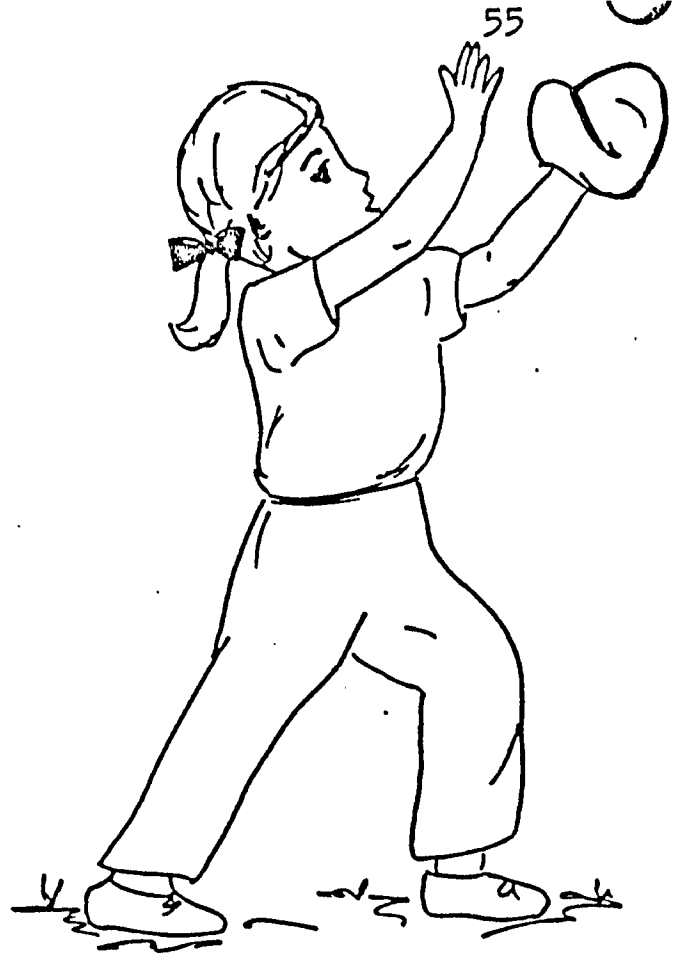
boys boxing
(traditional)



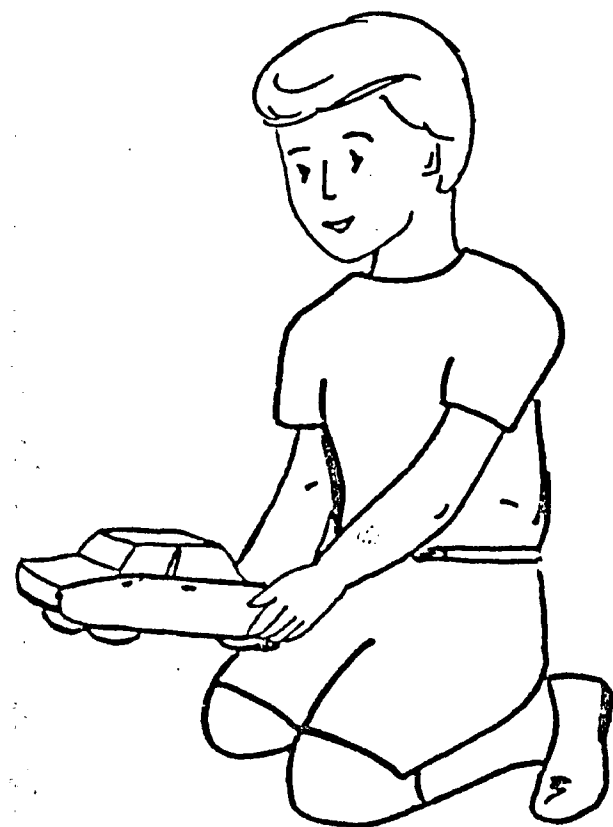
girls boxing
(nontraditional)



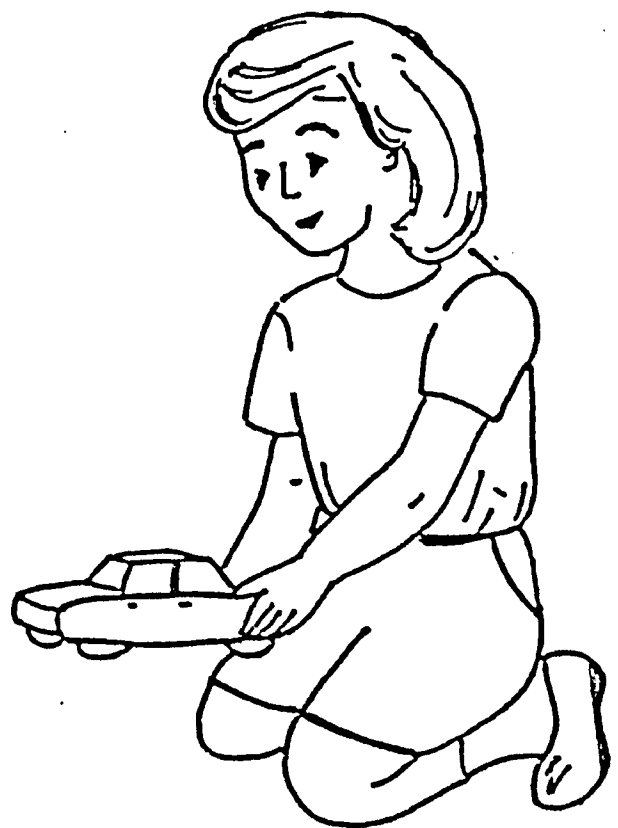
boy playing baseball
(traditional)



girl playing baseball
(nontraditional)



boy playing with a car
(traditional)



girl playing with a car
(nontraditional)



boy digging
(traditional)



girl digging
(nontraditional)



boy sawing
(traditional)



girl sawing
(nontraditional)

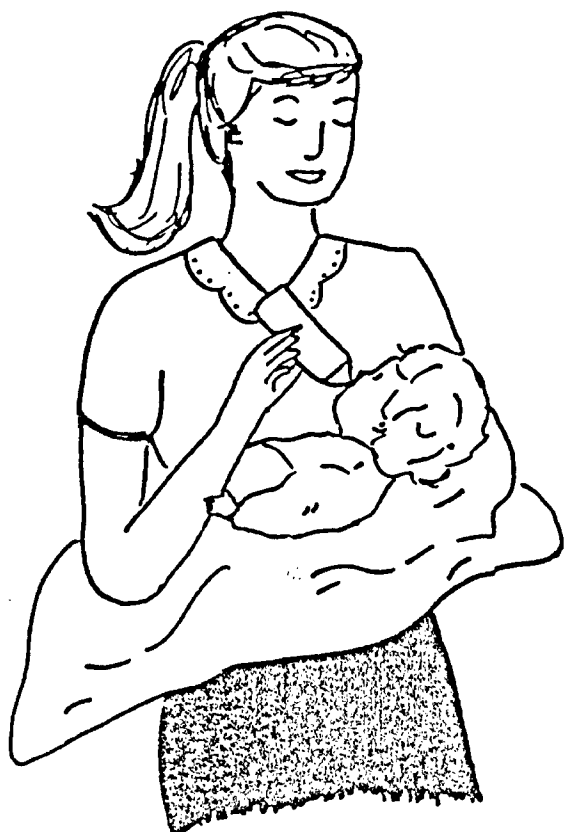
Feminine Activities:



girl ironing
(traditional)



boy ironing
(nontraditional)



girl feeding a baby
(traditional)



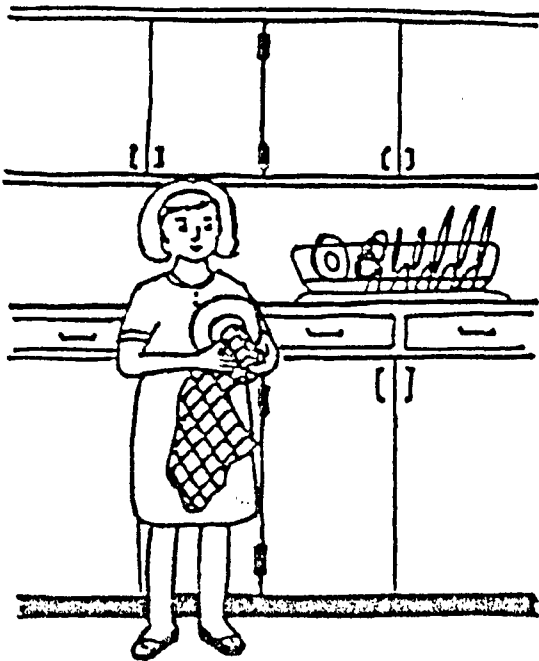
boy feeding a baby
(nontraditional)



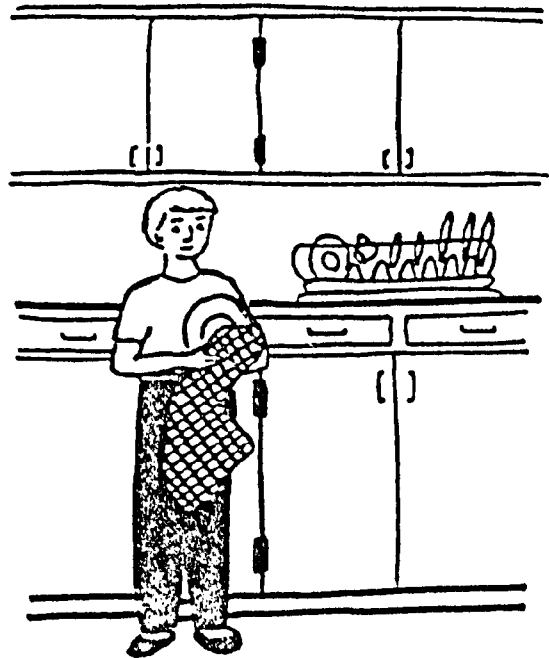
girl cooking
(traditional)



boy cooking
(nontraditional)



girl washing dishes
(traditional)



boy washing dishes
(nontraditional)



girl sweeping
(traditional)



boy sweeping
(nontraditional)



girl sewing
(traditional)



boy sewing
(nontraditional)

Neutral Activities:



girl reading



boy reading



girl playing with a dog



boy playing with a dog

Appendix C
SEX STEREOTYPING QUESTIONNAIRE

Name: _____

Circle: M (male) or F (female)

Birthdate: _____



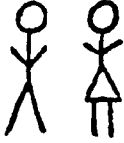
Age: _____

Grade: _____

On the next page, there is a list of activities that people do. Beside each activity there are three boxes. For each activity, think of who usually does this more often. If you think men (or boys) do a certain activity more often than women (or girls), then put a checkmark in the first box. If you think women (or girls) do a certain activity more often than men (or boys), then put a checkmark in the second box. If you think there is no difference and that men (or boys) and women (or girls) do a certain activity equally often, then put a checkmark in the third box.



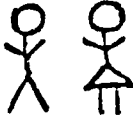
Let's practise with these:

Who does this more often?

	MEN 	WOMEN 	NO DIFFERENCE 
1) eating			
2) cooking			
3) fighting fires			
4) watching t.v.			

Now do these:

Who does this more often?

	MEN 	WOMEN 	NO DIFFERENCE 
1) shopping for shoes			
2) hammering			
3) playing records			
4) feeding birds			
5) playing baseball			
6) washing clothes			
7) sawing			
8) farming			
9) sewing			
10) reading a book			
11) cooking			
12) mailing a letter			
13) drawing			
14) chopping wood			
15) ironing			
16) feeding a baby			
17) painting a picture			
18) boxing			
19) washing dishes			
20) playing with a dog			
21) delivering mail			

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